CLAIMS:

1. A mechanical shutter having a light path controllable by a shutter element, wherein

- said shutter element comprises a layer of oriented polymerized liquid crystal, the polymerized liquid crystal being oriented anisotropically near at least one major surface of the layer, and exhibiting, when moving from the at least one major surface towards the major surface opposite the at least one major surface, a variation in orientation and/or concentration;
- the variation being such that the thermal expansion coefficient along a lateral extension of the shutter element is a function of a depth in said shutter element perpendicular to said lateral extension;
- such that, at a first temperature, said shutter element is essentially flat and thus closes said light path, and, at a second temperature, said shutter element is bent and thus opens said light path.

2. A mechanical shutter according to claim 1, wherein said shutter element comprises a layer of polymerized liquid crystal wherein the variation is continuous such that the thermal expansion coefficient along a lateral extension of the shutter element is a continuous function of a depth in said shutter element perpendicular to said lateral extension.

3. A mechanical shutter according to claim 1, wherein said polymerized liquid crystal has a splayed orientation.

4. A mechanical shutter according to claim 1, wherein said polymerized liquid crystal has a twisted nematic orientation.

5. A mechanical shutter according to claim 1, wherein said polymerized liquid crystal comprises a light absorbing dichroic dye.

6. A mechanical shutter according to claim 1, wherein said shutter element further comprises a light blocking layer that is arranged on the layer of polymerized liquid crystal.

7. A mechanical shutter according to claim 1, further comprising a base substrate to which said shutter element is suspended, a transparent base electrode provided on the base substrate across said light path, and a shutter electrode provided on said shutter element, such that the shutter element is controllable by means of an electrostatic force set up between said electrodes.

8. A mechanical shutter according to claims 6 and 7, wherein said light blocking layer and said shutter electrode is formed out of a single, light blocking and electrically conductive material.

9. A mechanical shutter according to claim 7, comprising an array of shutter elements individually controllable by means of separate electrodes.

10. A mechanical shutter according to claim 1, wherein the layer of polymerized liquid crystal comprises a first and a second, spatially separate section wherein the variation is mutually different.

11. A display element comprising a mechanical shutter according to claim 7.

12. A display element according to claim 11, wherein the shutter element is opaque and wherein a color filter element is provided in said light path.

13. A display element according to claim 11, wherein the shutter element is reflective for light of a certain color and wherein an essentially black light absorbing surface is provided in the light path.

14. Method of manufacturing a mechanical shutter comprising the steps of:

- applying an orientation layer on a substrate;
- applying a layer of a polymerizable liquid crystal on said orientation layer;

- orienting and polymerizing said polymerizable liquid crystal thus defining at least one shutter element comprising a layer of oriented polymerized liquid crystal;
- removing any excess polymerizable liquid crystal.

15. Method of manufacturing a mechanical shutter according to claim 14, further comprising the steps of

- providing a transparent electrode layer on a transparent base substrate; and
- applying a layer of electrically conducting material on said shutter element, thus defining a shutter electrode.

16. Method according to claim 15, wherein the step of applying a layer of electrically conducting material on said shutter element involves sputtering of aluminum on said shutter element.

17. Method according to claim 14, wherein the step of polymerizing involves photo-polymerization.

18. Method according to claim 17, wherein the step of photo-polymerizing is preceded by the step of annealing said liquid crystal mixture at a temperature above 120°C for at least 30 minutes.

19. Method according to claim 14, wherein said polymerizable liquid crystal comprises a surfactant that promotes a homeotropic orientation of polymerizable liquid crystal monomers when interfacing air, and wherein the step of polymerizing is performed while exposing the polymerizable liquid crystal layer to air.

20. Method according to claim 14, further comprising the step of providing a second, temporary substrate in contact with said polymerizable liquid crystal that induces a desired orientation in said polymerizable liquid crystal, and wherein said step of polymerizing said polymerizable liquid crystal is performed while said second, temporary substrate is in contact with said polymerizable liquid crystal.